

You should not use any built-in functions for this assignment. For each problem you should assign the test vectors at the top of your code right after the `clear` statement.

- 1) (3 pts) Write a script that will take two vectors x and y and compute their cross product $z = x \times y$. Test your script using

$$x = \begin{pmatrix} 2 \\ -1 \\ 8 \end{pmatrix}; \quad y = \begin{pmatrix} 1 \\ -1 \\ 1 \end{pmatrix}.$$

- 2) (3 pts) Write a script that will compute the length of a vector in n -dimensional space. The formula for this is

$$d = \sqrt{\sum_{i=1}^n x_i^2}.$$

Test your script using the vector

$$x = \begin{pmatrix} 2 \\ -1 \\ 5 \\ 7 \\ 9 \\ -3 \end{pmatrix}.$$

- 3) (4 pts) Referring to Problem 3 of HW 9, write this same program but instead of reading the values from the keyboard, store your values in a vector.
- 4) (7 pts) Write a script that will tabulate the polynomial of degree k

$$y = a_0 + a_1x + a_2x^2 + \cdots + a_kx^k$$

for some given vector of points x . Assume your polynomial coefficients are stored in a vector a . Test your script when x is the vector of 11 equally spaced points on the interval $[0, 3]$ and the polynomial coefficients are defined by the vector.

$$a = \begin{pmatrix} -2 \\ 3 \\ 3 \\ -1 \\ 2 \end{pmatrix}.$$

Store the corresponding y values in a vector.